

ENTERED

November 23, 2021

Nathan Ochsner, Clerk

IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION

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|------------------------------|---|----------------------------|
| DYNAENERGETICS EUROPE GMBH, | § | |
| and DYNAENERGETICS US, INC., | § | |
| | § | |
| Plaintiff, | § | |
| | § | |
| v. | § | CIVIL ACTION NO. H-20-2123 |
| | § | |
| HUNTING TITAN, INC., | § | |
| | § | |
| Defendant. | § | |

MEMORANDUM OPINION AND ORDER

This action is brought by plaintiffs, DynaEnergetics Europe GmbH, and DynaEnergetics US, Inc., ("DynaEnergetics" or "Plaintiffs"), against defendant, Hunting Titan, Inc. ("Hunting Titan" or "Defendant"), under the Patent Act of the United States, 35 U.S.C. § 101, et seq., including 35 U.S.C. § 271, for alleged infringement of two United States patents for perforation gun components and systems used in oil and gas exploration:¹ (1) U.S. Patent No. 10,429,161 ("'161 Patent"), filed on June 8, 2017, and issued on October 1, 2019, to DynaEnergetics GmbH & Co. KG (now DynaEnergetics Europe GmbH);² and (2) U.S. Patent No. 10,472,938 ("'938 Patent"), filed on March 20, 2019, and issued on November

¹Second Amended Complaint (actually Plaintiffs' third amended complaint) ("Live Complaint"), Docket Entry No. 63, pp. 1-2 ¶¶ 1-6. Page numbers for docket entries in the record refer to the pagination inserted at the top of the page by the court's electronic filing system, CM/ECF.

²Id. at 3 ¶ 11. See also '161 Patent, Exhibit A to Live Complaint, Docket Entry No. 63-1.

12, 2019, to JDP Engineering and Machine Inc. and DynaEnergetics GmbH & Co. KG (now DynaEnergetics Europe GmbH).³ The procedural background to this action is described in the July 15, 2021, Memorandum Opinion and Order entered in both Civil Action No. 17-3784, and in this action (Docket Entry No. 50).

Plaintiffs have filed an Opening Brief asking the court to construe four disputed terms: One term from the '161 Patent, and three terms from the '938 Patent.⁴ Defendant has filed a Responsive Claim Construction Brief,⁵ to which Plaintiffs have replied.⁶ Each party has filed a technology tutorial,⁷ and the parties have submitted a Joint Claim Construction Chart Pursuant to Local Patent Rule 4-5(d) ("Joint Claim Construction Chart") (Docket Entry No. 78).

³Id. at 3 ¶ 12. See also '938 Patent, Exhibit B to Live Complaint, Docket Entry No. 63-2.

⁴DynaEnergetics Europe GmbH and DynaEnergetics US, Inc.'s Opening Claim Construction Brief ("Plaintiffs' Opening Brief"), Docket Entry No. 70, p. 4.

⁵Defendant's Responsive Claim Construction Brief ("Defendant's Responsive Brief"), Docket Entry No. 73.

⁶DynaEnergetics Europe GmbH and DynaEnergetics US, Inc.'s Reply Claim Construction Brief ("Plaintiffs' Reply"), Docket Entry No. 74.

⁷See DynaEnergetics Europe GmbH and DynaEnergetics US, Inc.'s Written Technology Tutorial ("Plaintiffs' Written Tutorial"); Docket Entry No. 65; and Defendant Hunting Titan's Technical Tutorial ("Defendant's Written Tutorial"), Docket Entry No. 66.

On October 28, 2021, the court conducted a hearing at which the parties agreed that the term "directional locking fin" used in the '161 Patent has its plain and ordinary meaning,⁸ and they presented argument on the three terms that remain in dispute: "tandem seal adapter," "signal-in connector," and "through wire connector." See Markman v. Westview Instruments, Inc., 116 S. Ct. 1384, 1387 (1996) ("We hold that the construction of a patent, including terms of art within its claim, is exclusively within the province of the court."). Each party has submitted a post-hearing brief.⁹

I. Legal Standard for Claim Construction

In Markman the United States Supreme Court held that the construction of patent claims is a matter of law exclusively for the court. Id. When the parties dispute the meaning of particular claim terms,

the judge's task is not to decide which of the adversaries is correct. Instead the judge must independently assess the claims, the specification, and if necessary the prosecution history, and relevant extrinsic evidence, and declare the meaning of the claims.

⁸See Hearing Minutes and Order, Docket Entry No. 82, and Markman Hearing Transcript, Docket Entry No. 86, pp. 5:8-6:5.

⁹See Defendant's Supplemental Brief on Claim Construction ("Defendant's Supplemental Brief"), Docket Entry No. 89, and DynaEnergetics Europe GMBH and DynaEnergetics US, Inc.'s Response to Defendant's Supplemental Claim Construction Brief ("Plaintiffs' Response to Defendant's Supplemental Brief"), Docket Entry No. 90.

Exxon Chemical Patents, Inc. v. Lubrizol Corp., 64 F.3d 1553, 1556 (Fed. Cir. 1995), cert. denied, 116 S. Ct. 2554 (1996).

Courts begin claim construction by ascertaining the "ordinary and customary meaning" of disputed claim terms. See Phillips v. AWH Corporation, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc), cert. denied, 126 S. Ct. 1332 (2006). "[T]he ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art [("POSITA")] in question at the time of the invention, i.e., as of the effective filing date of the patent application." Id. at 1313 (citing Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc., 381 F.3d 1111, 1116 (Fed. Cir. 2004) (recognizing that "claim construction is an objective inquiry"). "[T]he [POSITA] is deemed to read the claim term not only in the context of the particular claim in which the disputed term appears, but in the context of the entire patent, including the specification." Id.

In some cases, the ordinary meaning of claim language as understood by a [POSITA] may be readily apparent even to lay judges, and claim construction in such cases involves little more than the application of the widely accepted meaning of commonly understood words. See Brown v. 3M, 265 F.3d 1349, 1352 (Fed. Cir. 2001) (holding that the claims did "not require elaborate interpretation"). In such circumstances, general purpose dictionaries may be helpful. In many cases that give rise to litigation, however, determining the ordinary and customary meaning of the claim requires examination of terms that have a particular meaning in a field of art. Because the meaning of a claim term as understood by persons of skill in the art is often not immediately apparent, and because patentees frequently use terms idiosyncratically, the court looks to "those sources available to the public

that show what a person of skill in the art would have understood disputed claim language to mean.” Innova, 381 F.3d at 1116. Those sources include “the words of the claims themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art.”

Id. at 1314 (quoting Innova, 381 F.3d at 1116). See also Chef America, Inc. v. Lamb-Weston, Inc., 358 F.3d 1371, 1373 (Fed. Cir. 2004) (as a general rule “simple English words whose meaning is clear and unquestionable” need no further construction).

“Generally speaking, [courts] indulge a ‘heavy presumption’ that a claim term carries its ordinary and customary meaning.” CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed. Cir. 2002).

For example, if an apparatus claim recites a general structure (e.g., a noun) without limiting that structure to a specific subset of structures (e.g., with an adjective), [the court] will generally construe the claim to cover all known types of that structure that are supported by the patent disclosure.

Renishaw PLC v. Marposs Societa’ per Azioni, 158 F.3d 1243, 1250 (Fed. Cir. 1998). See York Products, Inc. v. Central Tractor Farm & Family Center, 99 F.3d 1568, 1572 (Fed. Cir. 1996) (“Without an express intent to impart a novel meaning to claim terms, an inventor’s claim terms take on their ordinary meaning.”).

There are several exceptions to the general rule that claim terms carry their ordinary and customary meaning. A “claim term will not receive its ordinary meaning if the patentee acted as his own lexicographer and clearly set forth a definition of the

disputed claim term in either the specification or prosecution history.” CCS Fitness, 288 F.3d at 1366. See also Hormone Research Foundation, Inc. v. Genentech, Inc., 904 F.2d 1558, 1563 (Fed. Cir. 1990), cert. dismissed, 111 S. Ct. 1434 (1991) (“It is a well-established axiom in patent law that a patentee is free to be his or her own lexicographer . . . and thus may use terms in a manner contrary to or inconsistent with one or more of their ordinary meanings.”). A claim term may also be interpreted more narrowly than it otherwise would be “if the intrinsic evidence shows that the patentee distinguished that term from prior art on the basis of a particular embodiment, expressly disclaimed subject matter, or described a particular embodiment as important to the invention.” CCS Fitness, 288 F.3d at 1366-67 (citing Spectrum International, Inc. v. Sterilite Corp., 164 F.3d 1372, 1378-80 (Fed. Cir. 1998) (narrowing a claim term’s ordinary meaning based on statements in intrinsic evidence that distinguished the invention from prior art)). “[A] claim term also will not have its ordinary meaning if the term ‘chosen by the patentee so deprive[s] the claim of clarity’ as to require resort to the other intrinsic evidence for a definite meaning.” Id. at 1367. Thus, courts may rely on intrinsic and extrinsic evidence when considering claim construction disputes. Id. at 1366.

A. Intrinsic Evidence

The "claims are 'of primary importance[] in the effort to ascertain precisely what it is that is patented.'" Phillips, 415 F.3d at 1312 (quoting Merrill v. Yeomans, 94 U.S. 568, 570 (1876)). This is "[b]ecause the patentee is required to 'define precisely what his invention is.'" Id. (quoting White v. Dunbar, 7 S. Ct. 72, 75 (1886)). Courts, therefore, carefully consider the context within which a particular term is used in an asserted claim, as well as how the term is used in other claims within the same patent. Id. at 1314. Other intrinsic sources can also be helpful. For example, "the specification 'is always highly relevant to the claim construction analysis'" and can be either dispositive or "the single best guide to the meaning of a disputed term." Id. at 1315 (quoting Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed. Cir. 1996)). While "[i]t is therefore entirely appropriate for a court, when conducting claim construction, to rely heavily on the written description [*i.e.*, the specification] for guidance as to the meaning of the claims," Phillips, 415 F.3d at 1317, it is important that the specification be used only to interpret the meaning of a claim, not to confine patent claims to the embodiments described therein. Id. at 1323 ("although the specification often describes very specific embodiments of the invention, we have repeatedly warned against confining the claims to those embodiments").

The patent's prosecution history should also be considered when offered for purposes of claim construction. Phillips, 415 F.3d at 1317. The prosecution history "consists of the complete record of the proceedings before the PTO [Patent and Trademark Office] and includes the prior art cited during the examination of the patent." Id. "[T]he prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be." Id. But "because the prosecution history represents an ongoing negotiation between the PTO and the applicant, rather than the final production of that negotiation, it often lacks the clarity of the specification and thus is less useful for claim construction purposes." Id.

B. Extrinsic Evidence

The court may also look to extrinsic evidence, including dictionaries, treatises, and expert testimony, to help it reach a conclusion as to a term's meaning. Id. at 1317 ("[W]hile extrinsic evidence can shed useful light on the relevant art , . . . it is less significant than the intrinsic record in determining the legally operative meaning of claim language."). The court must be mindful that extrinsic evidence may only supplement or clarify – not displace or contradict – intrinsic evidence. Id. at 1320-24.

II. Construction of Disputed Terms

The parties dispute the construction of three terms that appear in asserted independent claims 1 and 9 of the '938 Patent, which is generally directed to the electrical connections within a perforation gun.¹⁰

A. Perforation Guns

"Perforation guns are specialized assemblies that include explosives and are deployed into oil and gas wells where the explosives are detonated to 'perforate' hydrocarbon-containing underground formations, for extracting fossil fuels and natural gas from the underground formations."¹¹

[T]he perforating process involves carrying explosive charges downhole (into the well) and positioning them at a desired depth in order to open up communication to the rock and embedded hydrocarbons upon detonation of the explosives. The shaped charges open up tunnels through the wellbore casing lining the well and radially outward into the surrounding formation. The perforation tunnels act as conduits through which reservoir fluids flow from the formation into the wellbore and up to the surface during the production phase of the well. Each perforation creates a channel that allows oil and/or gas to leave the rock and enter the oil or gas well. . .

¹⁰Plaintiffs' Opening Brief, Docket Entry No. 70, pp. 5-6. See also Markman Hearing Transcript, Docket Entry No. 86, pp. 15:4-9 (Plaintiffs), and 21:12-14 (Defendant).

¹¹Plaintiffs' Opening Brief, Docket Entry No. 70, p. 6. See also Plaintiffs' Written Tutorial, Docket Entry No. 65, p. 8; Declaration of John Rodgers, Ph.D. ("Rodgers Declaration"), ¶¶ 15-18, Exhibit A to Plaintiffs' Opening Brief, Docket Entry No. 70-1, pp. 6-8.

Perforation guns are the vessels used to transport and deliver the explosive shaped charges within the wellbore and they come in a variety of sizes and configurations. . .¹²

Conventional perforation guns are limited due to, inter alia, "the required on-site assembly of the charge tube, positioning of the charge tube into a gun carrier, and on-site wiring of electrical and ballistic connections used to relay electrical detonation signals and detonate the shaped charges."¹³ Plaintiffs contend that

[t]he inventors of the Patents-in-Suit removed these limitations and ushered in the era of modular, "pre-wired," factory-assembled perforation guns that do not require cumbersome on-site assembly of internal components or wiring of electrical and/or ballistic connections. . . These new and improved perforating gun systems contain contactable electrical feed through connections (as opposed to wired connections) that replace the wiring and crimping between successive perforating guns in a string that was used in the prior art conventional systems. . .¹⁴

¹²Rodgers Declaration, ¶¶ 16-17, Exhibit A to Plaintiff's Opening Brief, Docket Entry No. 70-1, p. 7. See also Defendant's Responsive Brief, Docket Entry No. 73, pp. 6-8 (citing Defendant's Written Tutorial, Docket Entry No. 66, pp. 4-7).

¹³Rodgers Declaration, ¶ 36, Exhibit A to Plaintiff's Opening Brief, Docket Entry No. 70-1, pp. 18-19. See also Defendant's Responsive Brief, Docket Entry No. 73, p. 8.

¹⁴Plaintiff's Opening Brief, Docket Entry No. 70-1, p. 9 (citing Rodgers Declaration, ¶ 37, Exhibit A to Plaintiff's Opening Brief, Docket Entry No. 70-1, p. 19).

B. Disputed Terms

The parties seek construction of three terms that appear in asserted Claims 1 and 9 of the '938 Patent: (1) "tandem seal adapter;" (2) "signal-in connector," which also appears in asserted dependent claims 7-8, and 12; and (3) "through wire connector," which also appears in asserted dependent claims 8 and 12.¹⁵

Independent Claim 1 discloses

[a] perforating gun, comprising: an outer gun carrier; a charge holder positioned within the outer gun carrier and including at least one shaped charge; a detonator contained entirely within the outer gun carrier, the detonator including a detonator body containing detonator components, **a wireless signal-in connector, a wireless through wire connector,** and a wireless ground contact connector, and an insulator electrically isolating the **wireless signal-in connector** from the **wireless through wire connector;** and, a bulkhead, wherein the bulkhead includes a contact pin in wireless electrical contact with the **wireless signal-in connector,** wherein at least a portion of the bulkhead is contained within a **tandem seal adapter,** and the wireless ground contact connector is in wireless electrical contact with the **tandem seal adapter.**¹⁶

Dependent Claims 7 and 8 disclose

7. The perforating gun of claim 1, wherein the detonator includes a signal-in wire electrically connected to the **wireless signal-in connector** and a ground wire electrically connected to the wireless ground contact connector.

¹⁵Live Complaint, Docket Entry No. 63, p. 4 ¶ 17 (asserting infringement of Claim 1 of the '938 Patent). See also Plaintiffs' Opening Brief, Docket Entry No. 70, pp. 21, 23-24, and 26; and Joint Claim Construction Chart, Docket Entry No. 78, pp. 5-8.

¹⁶'938 Patent, Col. 11:16-35, Docket Entry No. 63-2, p. 28 (emphasis added).

8. The perforating gun of claim 1, wherein the detonator is configured for being electrically contactably received within the perforating gun without using a wired electrical connection, and the **wireless signal-in connector**, the **wireless through-wire connector**, and the wireless ground contact connector together are configured to replace the wired electrical connection and to complete an electrical connection merely by contact.¹⁷

Independent Claim 9 discloses

A modular detonator, comprising: a detonator body containing detonator components; a **wireless signal-in connector**; a **wireless through wire connector**; a wireless ground contact connector; a signal-in wire electrically connecting at least in part the **wireless signal-in connector** to at least one of the detonator components; and, an insulator electrically isolating the **wireless signal-in connector** from the **wireless through wire connector**, wherein the **wireless signal-in connector** is configured for making wireless electrical contact with an electrical contact of a bulkhead assembly contained at least in part within a **tandem seal adapter** when the modular detonator is received within a gun assembly of a perforating gun system, and the wireless ground contact connector is configured for making wireless electrical contact with the **tandem seal adapter** when the modular detonator is received within the gun assembly of the perforating gun system.¹⁸

Dependent Claim 12 discloses

The modular detonator of claim 9, wherein the modular detonator is configured for being electrically contactably received within the gun assembly of the perforating gun system without using a wired electrical connection, and the **wireless signal-in connector**, the **wireless through-wire connector**, and the wireless ground contact connector together are configured to replace the wired electrical connection and to compete an electrical connection merely by contact.¹⁹

¹⁷Id. Col. 11:51-62, Docket Entry No. 63-2, p. 28 (emphasis added).

¹⁸Id. Col. 11:63-12:16, Docket Entry No. 63-2, p. 28 (emphasis added).

¹⁹Id. Col. 12:26-33, Docket Entry No. 63-2, p. 28 (emphasis (continued...))

C. Analysis

Plaintiffs argue that the each of the disputed terms "has a well-understood meaning in view of the claims and specification, which the jury will readily understand, and does not require construction."²⁰ Plaintiffs argue that Defendant's proposed constructions should be rejected because they

violate numerous well-established claim construction principles – rewriting the claims to depart from their plain language or importing limitations from the specification and wholly disregarding the express claim language and the intrinsic record – ostensibly to manufacture otherwise non-existent non-infringement positions. [Plaintiffs] respectfully request[] that the Court reject [Defendant's] proposed constructions and adopt the plain and ordinary meaning of each disputed term. . . .²¹

Defendant asks the court to adopt its constructions of the disputed terms, arguing that Plaintiffs' technology reflects prior art, and that "[i]n order to get the patents granted over the prior art, Plaintiffs added several claim terms that have no commonly used or accepted meaning within the industry, including the . . . disputed terms."²² Defendant argues that the court should adopt their proposed constructions because they propose "construing these terms according to how a [POSITA] would understand them after reading the specification and prosecution history."²³

¹⁹(...continued)
added).

²⁰Plaintiff's Opening Brief, Docket Entry No. 70, p. 4.

²¹Id.

²²Defendants' Responsive Brief, Docket Entry No. 73, p. 5.

²³Id.

1. "Tandem Seal Adapter"

| Disputed Term | Claims | Plaintiff's Construction | Defendants' Construction |
|-----------------------|---------|--|---|
| "tandem seal adapter" | 1 and 9 | <p>Plaintiff's Initial Proposal: No construction necessary; plain and ordinary meaning applies. (Docket Entry No. 70, pp. 21-23; Docket Entry No. 74, pp. 12-17).</p> <p>Plaintiff's Alternative Proposal: A component that creates a seal between adjacent gun housings and provides a channel to receive a bulkhead. (Docket Entry No. 70, p. 21; Docket Entry No. 74, p. 12).</p> | <p>Defendants' Proposal: An adapter attached to and sealing adjacent outer gun carriers from the outside environment. (Docket Entry No. 73, pp. 20-25).</p> |

Asserting that "[t]he term 'tandem seal adapter' – though not a common industry term – is well-defined and described in the claims and specification of the '938 Patent,"²⁴ Plaintiffs argue that the term "tandem seal adapter" should "have its plain and ordinary meaning."²⁵ Alternatively, Plaintiffs argue that "[i]f construction is helpful, a POSITA would understand from the plain language of . . . claims 1 . . . and 9 that a tandem seal adapter is 'a component that creates a seal between two gun housings and provides a channel to receive or accommodate a bulkhead.'"²⁶ Plaintiffs argue that "[Defendant's] proposed construction

²⁴Plaintiff's Opening Brief, Docket Entry No. 70, p. 21.

²⁵Id.

²⁶Id. (quoting Rodgers Declaration, ¶ 91, Exhibit A to Plaintiffs' Opening Brief, Docket Entry No. 70-1, p. 40).

impermissibly narrows the overall scope of the claimed invention by rewriting the claims to require the presence of two outer gun carriers when the independent claims expressly recite only one – ‘an outer gun carrier,’”²⁷ and to require “that the tandem seal adapter is ‘attached to and sealing adjacent outer gun carriers from the outside environment.’”²⁸

Defendant responds that Plaintiffs’ proposed construction must be rejected because it “impermissibly expands the scope of the claims to include scope that was relinquished during prosecution.”²⁹ Asserting that “prosecution history disclaimer prevents Plaintiffs from construing the claimed ‘tandem seal adapter’ as merely a ‘component’ of the gun carrier with one seal, instead of the required separate ‘adapter’ with two seals,”³⁰ Defendant argues that

Plaintiffs amended the claims to overcome prior art by moving the claimed “tandem seal adapter” from a dependent claim into the independent claims. Under prosecution history disclaimer, Plaintiffs are not allowed to recapture claim scope they gave up to secure the patent rights in the first place.³¹

Defendant explains that

[t]he original independent claim did not include either a “bulkhead” or a “tandem seal adapter,” instead, the

²⁷Id. at 23.

²⁸Id.

²⁹Defensive Responsive Brief, Docket Entry No. 73, p. 24.

³⁰Id. at 21.

³¹Id.

"bulkhead" was found in dependent claim 4 and "tandem seal adapter" was found in dependent claim 6. . . . The Examiner rejected most of the original claims as anticipated by Lerche and Schacherer, including the claimed "bulkhead," finding that "Schacherer further discloses a bulkhead (connector 84, see Fig. 5)." . . . The Examiner found, however, that claim 6 was acceptable because "the prior art fails to anticipate or make obvious . . . wherein at least a portion of the bulkhead is contained within a tandem seal adapter." . . . Specifically, the Examiner contrasted bulkheads contained within outer gun carrier 26 from tandem seal adapters: "Schacherer is considered [the] most relevant known prior art who discloses a bulkhead 84 that is contained within an outer housing 26 of the perforating gun." . . . Plaintiffs readily accepted the Examiner's findings and amended the independent claims to include the limitations from claim 6. . . .

Instead of a bulkhead within the gun housing, as disclosed in Schacherer, the '938 Patent makes clear that the claimed "tandem seal adapter" is a separate part that seals the connection between two adjacent gun carriers, one after another. This is evidence from the claim itself, which requires a separate "tandem seal adapter" that includes "at least a portion of the bulkhead." '938 Patent, Ex. 2 at 11:32-35. The word "tandem" also shows this, which is defined in Merriam-Webster as "a group of two or more arranged one behind the other." . . .

The specification of the '938 Patent also makes clear that the claimed "tandem seal adapter" connects two guns together in the string. The term is described in several embodiments, but each of them show the same thing: the adapter seals two guns or tools in the string between each other. In each of Figures 19, 32, and 33, the tandem seal adapter is described and shown between two perforating guns with two distinct O-rings 60, each set sealing one of the guns from the outside environment. . . . Thus, to give full effect to how Plaintiffs defined the term "tandem seal adapter" in the prosecution history and specification, the term should be considered as "an adapter attached to and sealing adjacent outer gun carriers from the outside environment."³²

³²Id. at 21-23.

Plaintiffs reply that Defendant's proposed construction is fundamentally flawed because "the independent claims of the '938 Patent expressly recite only one gun carrier – 'an outer gun carrier[,]'"³³ and because "nothing in the claim language of the '938 Patent requires that the tandem seal adapter is 'attached to' that outer gun carrier."³⁴ Plaintiffs argue that Defendant's proposed "construction is further flawed because [Defendant] relies on the dictionary (extrinsic evidence) for its alleged 'ordinary meaning' of 'tandem' in another attempt to narrow the claimed tandem seal adapter by requiring it to have two seals and be attached to two gun carriers."³⁵

Defendant contends that accepting Plaintiffs' argument that the term "tandem seal adapter" needs no construction will impermissibly expand the scope of the claims to include scope that Plaintiffs relinquished during prosecution. But missing from Defendant's briefing is a cite to any evidence from the prosecution history showing that Plaintiffs limited the term "tandem seal adapter" to Defendant's proposed construction, i.e., "an adapter attached to and sealing adjacent outer gun carriers from the outside environment." To the contrary, the references to "tandem seal adapter" in the prosecution history that Defendant cites

³³Plaintiff's Reply, Docket Entry No. 74, p. 13.

³⁴Id.

³⁵Id. at 15.

merely show that the PTO Examiner distinguished the prior art as disclosing a bulkhead contained within an outer gun carrier, while the '938 Patent discloses a bulkhead that is at least partially contained within a tandem seal adapter, and that Plaintiffs moved reference to "tandem seal adapter" from a dependent to an independent claim. Defendant has failed to show that Plaintiffs' movement of "tandem seal adapter" from a dependent to an independent claim requires tandem seal adapters to be attached to two outer gun carriers or to seal adjacent outer gun carriers from the outside environment, as required by Defendant's construction.

Defendant has also failed to show that its proposed construction is required by the specification. While the specification describes embodiments of the patented invention in which (1) "[t]he tandem seal adapter **48** is configured to seal the inner components within the carrier **12** from the outside environment, using sealing means **60** (shown herein as o-rings),"³⁶ and (2) "the tandem seal adapter **48** is a two-part tandem seal adapter . . . that fully contains the bulkhead assembly,"³⁷ the specification does not require the "tandem seal adapter" either to be attached to outer gun carriers or to seal adjacent outer gun

³⁶'938 Patent, Col. 7:57-60, Exhibit B to Live Complaint, Docket Entry No. 63-2, p. 26.

³⁷Id. at Col. 8:1-3, Exhibit B to Live Complaint, Docket Entry No. 63-2, p. 26.

carriers from the outside environment. See Phillips, 415 F.3d at 1323 (“[A]lthough the specification often describes very specific embodiments of the invention, [courts] have repeatedly warned against confining the claims to those embodiments.”).

After carefully considering the parties’ arguments and the applicable law, the court concludes that the term “tandem seal adapter” is subject only to its plain and ordinary meaning, which needs no further construction. Defendant’s arguments to the contrary are not persuasive because Defendant does not dispute that the words “tandem,” “seal,” and “adapter” are “simple English words whose meaning is clear and unquestionable” and require no further construction. Chef America, 358 F.3d at 1373. Moreover, adopting Defendant’s construction will not clarify a disputed term but, instead, will change the scope of the patented claims by requiring the “tandem seal adapter” to be attached to outer gun carriers and to seal adjacent outer gun carriers from the outside environment. See Home Diagnostics, Inc. v. LifeScan, Inc., 381 F.3d 1352, 1358 (Fed. Cir. 2004) (“Absent a clear disavowal or contrary definition in the specification or the prosecution history, the patentee is entitled to the full scope of its claim language.”). The court concludes that the term “tandem seal adapter” is not limited to “an adapter attached to and sealing adjacent outer gun carriers from the outside environment,” as Defendant argues, but, instead, needs no construction and is subject to its plain and ordinary meaning.

2. "Signal-in-Connector"

| Disputed Term | Claims | Plaintiff's Construction | Defendants' Construction |
|-----------------------|--------------|--|---|
| "signal-in-connector" | 1, 7-9, & 12 | No construction necessary; plain and ordinary meaning applies. (Docket Entry No. 70, pp. 4, 23-26; Docket Entry No. 74, pp. 17-22; Docket Entry No. 90.) | An electrical connector connected to a signal-in wire. (Docket Entry No. 73, pp. 25-28; Docket Entry No. 89.) |

Asserting that "[e]ach instance of "signal-in connector" in the '938 Patent claims is preceded by the word 'wireless,'" ³⁸ Plaintiffs argue that

[t]he meaning of "signal-in connector" in the context of the '938 Patent claims requires no construction because the term is clearly described in the specification and claims of the '938 Patent and well-understood by a POSITA. . . There is no ambiguity that the connector is wireless.

. . . a POSITA would understand that the term "signal-in connector" as used in the '938 Patent claims is consistent with its plain and ordinary meaning in view of the claims and specification. . . . No further construction is needed. ³⁹

Plaintiffs argue that Defendant's proposed construction of the term "signal-in connector" as "an electrical connector connected to a signal-in wire," improperly adds the requirement that the "signal-in connector" be "connected to a signal-in wire." ⁴⁰

³⁸Plaintiffs' Opening Brief, Docket Entry No. 70, p. 24.

³⁹Id. at 24-25.

⁴⁰Id. at 25.

Plaintiffs argue that “[t]he ‘connected to’ limitation is not only absent from the express language of the ‘938 Patent claims, it is antithetical to the claim language.”⁴¹ Pointing out that Defendant’s “proposed construction uses the term ‘connector’ – which is part of the disputed term – in its definition,”⁴² Plaintiffs also argue that Defendant’s proposed construction “would not provide any additional clarity to a POSITA as to the meaning of ‘connector’ beyond its plain and ordinary meaning.”⁴³

Asserting that “Claim 1 of the ‘938 Patent requires a detonator with three separate connectors: (1) a wireless signal-in connector, (2) a wireless through wire connector, and (3) a wireless ground contact connector,”⁴⁴ Defendant argues that “both the claimed ‘signal-in connector’ and ‘through wire connector’ require construction because the terms do not ‘connect’ to anything else in the claim.”⁴⁵ Observing that the specification does not include the term “signal-in connector,”⁴⁶ and that a “‘wireless signal-in connector’ does not have an accepted meaning within the

⁴¹Id.

⁴²Id. at 26.

⁴³Id.

⁴⁴Defendant’s Responsive Brief, Docket Entry No. 73, p. 25.

⁴⁵Id.

⁴⁶Id.

field of perforating guns,"⁴⁷ Defendant argues that "a [POSITA], reading the claims and the specification, would understand the term 'signal-in connector' to refer to an 'electrical connector connected to a signal-in wire, and not merely an electrical contact.'"⁴⁸ Defendant argues that this construction of the term "wireless signal-in connector" is supported by the prosecution history because

Plaintiffs originally proposed terms "wireless bulkhead connector portion," "wireless through wire connecting portion," and "wireless ground portion." . . . The Examiner rejected these terms because they did not have specification support. . . . Plaintiffs then amended the terms to specifically recite connectors and not contacts.⁴⁹

Citing Arendi S.A.R.L. v. Google LLC, 882 F.3d 1132 (Fed. Cir. 2018), Defendant argues that "[h]aving amended the claims to overcome rejections during prosecution, Plaintiffs cannot now seek to broaden the scope of its claims by changing the claimed connectors to contacts."⁵⁰ In Arendi the court held that "in order to disavow claim scope, a patent applicant must clearly and unambiguously express surrender of subject matter during prosecution." Id. at 1135.

⁴⁷Id. at 26.

⁴⁸Id. (citing Declaration of William Fleckenstein, Ph.D. ("Fleckenstein Declaration"), ¶¶ 33-34, Exhibit B to Plaintiffs' Opening Brief, Docket Entry No. 70-2, p. 14).

⁴⁹Id. at 26-27.

⁵⁰Id. at 27.

Plaintiffs reply that Defendant's

proposed construction of the term "signal-in connector" is at odds with the plain meaning of the term – read in light of the claim language and specification – and dispenses with a key aspect of the invention, the ability to make necessary electrical connections without wires. As all-but-ignored by [Defendant], each instance of 'signal-in connector' in the '938 Patent claims is preceded by the word "wireless."⁵¹

Plaintiffs argue that

[t]he appropriate analysis would be to consider the term "wireless signal-in connector" in conjunction with the claim limitation, "the bulkhead includes a contact pin in wireless electrical contact with the wireless signal-in connector." '938 Patent claim 1 (emphasis added). Read in context, there is no need to construe "signal-in connector," and there certainly is no basis to transform the term being wireless to one that requires a physical connection to something.⁵²

Defendant contends that accepting Plaintiffs' argument that the term "signal-in connector" needs no construction will impermissibly broaden the scope of the claims to include scope that Plaintiffs relinquished during prosecution. But missing from Defendant's briefing is a cite to any evidence from the prosecution history showing that Plaintiffs limited the term "signal-in connector" to Defendant's proposed construction, i.e., "an electrical connector connected to a signal-in wire." To the contrary, Defendant does not cite any references to "signal-in connector" in the prosecution history. Instead, Defendant merely shows that in response to the Examiner's comments, Plaintiffs

⁵¹Plaintiffs' Reply, Docket Entry No. 74, p. 17.

⁵²Id.

revised the terms "wireless through wire connection portion," and "wireless ground portion," by using the word "connector" so that these two terms are now "wireless through wire connector," and "wireless ground contact connector."⁵³ Regarding bulkhead, Claim 1 of the '938 Patent states that "the bulkhead includes a contact pin in wireless electrical contact with the wireless signal-in connector."⁵⁴ Defendant's reliance on the prosecution history in support of its proposed construction of the term "signal-in connector" is not persuasive because Defendant has failed to demonstrate that by revising the cited terms as stated, Plaintiffs relinquished claim scope. Instead, Defendant has merely shown that Plaintiffs resolved objections raised by the Examiner by using the term "connector" to better describe the invention using a simple English word, not to limit the invention's scope.

Defendant has also failed to show that its proposed construction is supported by the specification. Instead, acknowledging that "[t]he specification does not include the term 'signal-in connector,'"⁵⁵ Defendant observes that the specification "does briefly describe a 'bulkhead connector element 118' connected

⁵³Defendant's Responsive Brief, Docket Entry No. 73, pp. 26-27.

⁵⁴'938 Patent, Col. 11: 29-31, Exhibit B to Plaintiff's Second Amended Complaint, Docket Entry No. 63-2, p. 28.

⁵⁵Defendant's Responsive Brief, Docket Entry No. 73, p. 25.

to a 'signal-in wire.'"⁵⁶ Asserting that "Plaintiffs agree that bulkhead connector 118 is the claimed signal-in connector,"⁵⁷ Defendant argues that "a [POSITA], reading the claims and the specification, would understand the term 'signal-in connector' to refer to an 'electrical connector connected to a signal-in wire,' and not merely an electrical contact."⁵⁸

This argument is not persuasive because it omits the word "wireless," which appears in front of the term "signal-in connector" in all of the asserted claims. Construing "signal-in connector" as proposed by Defendant would impermissibly read the "wireless" limitation out of the claims. See Exxon Chemical Patents, 64 F.3d at 1557 ("We must give meaning to all the words in [the patentee's] claims."); CCS Fitness, 288 F.3d at 1366 (explaining that the presumption of ordinary meaning cannot be rebutted "simply by pointing to the preferred embodiment or other structures or steps disclosed in the specification or prosecution history"). See also Phillips, 415 F.3d at 1323 ("[A]lthough the specification often describes very specific embodiments of the invention, [courts] have repeatedly warned against confining the claims to those embodiments.").

⁵⁶Id.

⁵⁷Id. at 26 (citing Plaintiffs' Opening Brief, Docket Entry No. 70, p. 21).

⁵⁸Id. at 26.

After carefully considering the parties' arguments and the applicable law, the court concludes that the term "signal-in connector" is subject only to its plain and ordinary meaning, which needs no further construction. Defendant's arguments to the contrary are not persuasive because Defendant does not dispute that the word "connector" is a simple English word whose meaning is clear, unquestionable, and requires no further construction. See Chef America, 358 F.3d at 1373. To the contrary, Defendant states that "[the Court need look no further than the common understanding of the word 'connector.'"⁵⁹ Nevertheless, citing extrinsic evidence, Defendant asserts that the common understanding of the word "connector" is something that "must physically 'connect' or attach to something else."⁶⁰ The court does not find this argument persuasive because – as already explained in the preceding paragraph – Defendant's construction of "signal-in connector" contradicts the limitation "wireless," which appears in front of each use of the term in the asserted claims. Adopting Defendant's construction would not clarify a disputed term but, instead, would change the scope of the patented claims by omitting the word "wireless."⁶¹ The court concludes that the term "signal-in connector" is not limited to "an electrical connector connected to a signal-in wire" as Defendant argues, but, instead, needs no construction and is subject only to its plain and ordinary meaning.

⁵⁹Defendant's Responsive Brief, Docket Entry No. 73, p. 25.

⁶⁰Id. (citing Fleckenstein Declaration, ¶¶ 33-34, Exhibit B to Plaintiffs' Opening Brief, Docket Entry No. 70-2, pp. 14-15).

⁶¹See Plaintiffs' Reply, Docket Entry No. 74, pp. 18-20.

3. "Through Wire Connector"

| Disputed Term | Asserted Claims | Plaintiff's Construction | Defendants' Construction |
|--------------------------|-----------------|---|---|
| "through wire connector" | 1, 8, 9 & 12 | No construction necessary: plain and ordinary meaning applies. (Docket Entry No. 70, pp. 4, 26-28; Docket Entry No. 74, pp. 22-25; Docket Entry No. 90.) | A connector that is connected to the through wire within the perforating gun. (Docket Entry No. 73, pp. 28-29; Docket Entry No. 89.) |

Asserting that "[l]ike 'signal-in connector,' each instance of 'through wire connector' in the '938 Patent claims is preceded by the word 'wireless,'" ⁶² Plaintiffs argue that

[t]he meaning of "through wire connector" in the context of the '938 Patent claims requires no construction because the term is clearly described in the specification and claims of the '938 Patent and well-understood by a POSITA. . .

Specifically, the '938 Patent specification teaches that "necessary connections" for the push-in detonator include the wireless electrical contact connections between the various connector or contact elements, including the through wire connector element 112 and making contact with a through wire, "whose ends are connectors. . .

The wireless electrical contact connection between the through wire connector element 112 and the through wire replaces the previous wired connections. . . .

[Defendant] defines the term "through wire connector" as "a connector that is connected to the through wire within the perforating gun." This "connected to" limitation is antithetical to the express claim language. . . . As with the "signal-in connector," a POSITA would understand that the "through wire connector" would be a wireless electrical contact or

⁶²Plaintiffs' Opening Brief, Docket Entry No. 70, p. 27.

connector, as expressly required by the claim language in view of the specification. . . . For at least this reason, [Defendant's] construction, which is contrary to the claim language, should be rejected.⁶³

Plaintiff also argues that Defendant's construction

should be rejected as unhelpful to a jury. The limitation "[a] connector that is connected to the through wire within the perforating gun" adds unnecessary and confusing language because, e.g., '938 Patent claim 1 already requires that the detonator including the through wire connector is "contained entirely within the outer gun carrier."⁶⁴

Finally, asserting that Defendant's "proposed construction uses the term 'connector,' part of the disputed term,"⁶⁵ Plaintiffs argue that Defendant's construction "fail[s] to provide any additional clarity to a POSITA as to the meaning of 'connector' beyond its plain and ordinary meaning."⁶⁶

Defendant responds that "[s]imilar to the 'signal-in' connector,' the 'through wire connector' should also be construed as 'a connector that is connected to the through wire within the perforating gun.'"⁶⁷ Asserting that "[t]he claimed 'wireless through wire connector' has no accepted meaning in the industry for the Court to look to," and that "the term was . . . narrowed during prosecution at the same time as the claimed 'signal-in connector:'

⁶³Id. at 27-28.

⁶⁴Id. at 28.

⁶⁵Id.

⁶⁶Id.

⁶⁷Defendant's Responsive Brief, Docket Entry No. 73, p. 28.

from 'wireless through wire connecting portion' to a 'connector' with 'contacts,'"⁶⁸ Defendant argues that

Plaintiffs again seek to replace "connector" with "contacts." . . . But Plaintiffs specifically chose the term "connector" and could have used "contacts" instead. They should not be allowed to rewrite the claims now during claim construction, especially where both terms are used in the same claim and have a heavy presumption they mean different things.⁶⁹

Plaintiffs reply that

[l]ike "signal-in connector," each instance of "through wire connector" in the '938 Patent claims is preceded by the word "wireless." . . . [Defendant's] omission of "wireless" from the "through wire connector" term it proposed for construction does not change that fact. Read in context, "through wire connector" requires no construction because the term is clearly described in the claims and specification of the '938 Patent, and thus is well-understood by a POSITA. . . . Contrary to [Defendant's] tenuous position, there is not basis to transform the term from being wireless to one that requires a physical connection to something.

As with "signal-in connector" above, based on the complete claim language, and also in light of the '938 Patent specification, one of ordinary skill in the art would know that a wireless connector can connect simply by making contact. . . . In fact, the claim language requiring a "contact pin" that is "in wireless electrical contact with the wireless signal-in connector" and "a wireless ground contact connector" that is "in wireless electrical contact with the tandem seal adapter" proves that these "connectors" require only "contact" because they are claimed by their relationship (i.e., "in wireless electrical contact") with the contact pin and the tandem seal adapter, respectively. . . . Construing "connector" differently would impermissibly read the "wireless" limitation out of the claims.

⁶⁸Id. at 29.

⁶⁹Id.

[Defendant's] prosecution history argument with respect to "through wire connector" is equally unavailing and does not overcome the presumption in favor of plain and ordinary meaning. . . .⁷⁰

Defendant contends that accepting Plaintiffs' argument that the term "through wire connector" needs no construction will impermissibly broaden the scope of the claims to include scope that Plaintiffs relinquished during prosecution. But as with the term "signal-in connector," missing from Defendant's briefing with respect to the term "through wire connector" is a cite to evidence from the prosecution history showing that Plaintiffs limited the term to Defendant's proposed construction, *i.e.*, "a connector that is connected to the through wire within the perforating gun." Defendant has also failed to show that its proposed construction is supported by the specification. Defendant argues that "Plaintiffs again seek to replace 'connector' with 'contacts,'" but this argument is not persuasive because it omits the word "wireless," which appears in front of the term "through wire connector" in all of the asserted claims. Construing "through wire connector" as proposed by Defendant would impermissibly read the "wireless" limitation out of the claims. *See Exxon Chemical Patents*, 64 F.3d at 1557 ("We must give meaning to all the words in [the patentee's] claims.").

⁷⁰Plaintiffs' Reply, Docket Entry No. 74, pp. 22-23.

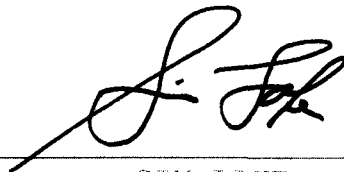
⁷¹Defendant's Responsive Brief, Docket Entry No. 73, p. 29.

After carefully considering the parties' arguments and the applicable law, the court concludes that the term "through wire connector" is subject only to its plain and ordinary meaning, which needs no further construction for substantially the same reasons stated with respect to the disputed term "signal-in connector." See Chef America, 358 F.3d at 1373. Accordingly, the court concludes that the term "through wire connector" is not limited to "a connector that is connected to the through wire within the perforating gun," as Defendant argues, but, instead, needs no construction and is subject only to its plain and ordinary meaning.

III. Order

For the reasons stated above, the court concludes that each of the three claim terms that remain in dispute, i.e., "tandem seal adapter," "signal-in connector," and "through wire connector," need no construction and that each term is, instead, subject to its plain and ordinary meaning.

SIGNED at Houston, Texas, on this 23rd day of November, 2021.

A handwritten signature in black ink, appearing to read 'S. Lake', is written over a horizontal line.

SIM LAKE
SENIOR UNITED STATES DISTRICT JUDGE